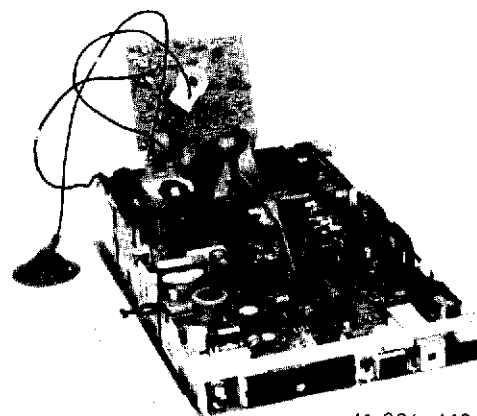


Service Service Service



41 884 A12

Service Manual

TECHNICAL DATA

| | |
|--------------------------|------------------------------|
| Mains voltage | : 220-240 V ~ ($\pm 10\%$) |
| Aerial input impedance | : 75 Ω - coax |
| Minimum aerial input VHF | : 30 μ V |
| Minimum aerial input UHF | : 40 μ V |
| Maximum aerial input | : 100 mV |

| | |
|-------------------------------|-------------------|
| Pull-in range colour cync | : +300 Hz/-300 Hz |
| Pull-in range horizontal sync | : +600 Hz/-600 Hz |
| Pull-in range vertical sync | : +5 Hz/-5 Hz |

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Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio

Subject to modification

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Service Consumer Electronics

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WARNINGS

1. Safety regulations demand that the set be restored to its original condition and that components identical to the original types be used.
Safety components are marked by the symbol .
2. In order to preclude damage to ICs and transistors flashover of the EHT should be avoided.
To prevent damage to the picture tube, the method indicated in fig. 1 should be followed in case of discharge.
Make use of a high-tension probe and a universal meter (mode DC-V).
Discharge until the meter reads 0 Volts (after approx 30 s).

3. ESD



All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

4. Together with the deflection unit and the possible multipole unit the flat square picture tubes applied form one whole. The deflection and multipole units have been adjusted in an optimum way in the factory. Adjustment of these units during repair is thus not recommended.
5. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
6. Proceed with care when testing the EHT section and the picture tube.
7. Never replace any modules or other parts while the set is switched on.
8. Wear safety goggles during replacement of the picture tube.
9. Use plastic instead of metal alignment tools.
This is in order to preclude short-circuits or to prevent a specific circuit from being rendered unstable.
10. On chassis versions up to and including issue number 3 the wires of the connecting cables are at both sides connected to the same pin numbers. This contrary to cables used in chassis versions having a higher issue number and in other types of sets.
Exchange of cables of chassis versions up to and including issue number 3 by cables of versions having a higher issue number or cables from different types of sets is thus not allowed.

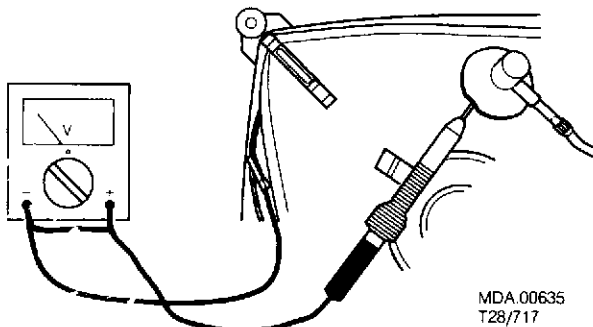


Fig. 1

REMARKS

1. In case of faultfinding and/or repairs on the modules the accessibility of circuits and components can be enlarged by making use of extension PCBs.
The ordering numbers for these extension PCBs are:
4-fold 4822 395 30262
5-fold 4822 395 30261
6-fold 4822 395 30259
8-fold 4822 214 31402
2. The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
3. The direct voltages should be measured as follows:
Do not apply an aerial signal. Adjust receiver for minimum brightness, maximum saturation and contrast.
4. The waveforms should be measured under the following conditions:
 - a. Use a colour-bar pattern as input signal. (PM5519).
 - b. Connect an oscilloscope (0,1 V/div.-DC) to point 5 of IC7260 via an 10:1 attenuator probe.
Set the saturation control to obtain 2,6V d.c..

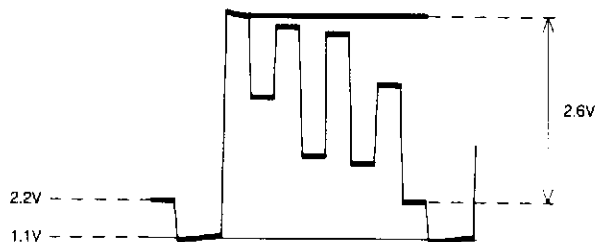


Fig. 2

VDA 00683
127-721

- c. Connect the oscilloscope to point 17 of IC7260.
 - d. Set the brightness control so that the level of the black bar in the video signal is situated at 2,2V (see Fig. 2).
 - e. Set the contrast control for a video signal amplitude of 2,6 V.
5. The CRT board is provided with printed spark gaps. Each spark gap is arranged between an electrode of the CRT and the aquadag coating.
 6. In the production alternative semi-conductors may be used.
However the semi-conductors specified in the parts list and circuit diagram can always be used as replacements.
 7. Connectors used for the modules (board to board) have been gold-plated and must be replaced by the same type only.

MECHANICAL INSTRUCTIONS

1. To facilitate troubleshooting and repairing the set the chassis can be pulled out of the cabinet and placed against the right-hand side of the set.
2. After prizing up the clamping ring K with a screwdriver or side-cutting pliers the EHT and focus cable may be pulled off the line output transformer (see Fig. 3). When refitting the cable first press the clamping ring onto the transformer until a click is heard; after this the cable may be pressed in place. Make sure that the cable is pressed down well.

ELECTRICAL ADJUSTMENTS

A. ADJUSTMENTS TO THE MAIN PANEL (Fig. 4)

1. +140V power supply voltage

Connect a voltmeter (DC) between pin 2 of connector R13 and ground.
Adjust 3670 for a voltage of 140V.

2. Horizontal synchronisation

Remove the screening cap of IF/SYNC unit 1001.
Apply an aerial signal. Interconnect points 5 and 9 of item 7038 (IF/SYNC unit).
Adjust 3055 until the picture is stationary.
Remove the interconnection.
Locate the screening cap.

3. Horizontal centring

This is adjusted with 3038 (IF/SYNC unit).

4. Vertical centring

This is adjusted with 1566.

5. Picture height

The picture height is adjustable with 3576.

6. Focussing

This is adjusted with the focussing potentiometer on the line output transformer (fig. 3).

7. V_{G2} adjustment

Adjust brightness and contrast for 2V.
Apply a black frame signal.
Connect an oscilloscope to the Red cathode of the picture tube.
Adjust with the G2 potentiometer on the line output transformer (see Fig. 3) the black level for 130V.

8. Chroma subcarrier oscillator

Apply a colour-bar pattern.
Interconnect points 24 and 25 of IC7260.
Connect a 470 Ω resistor between points 5 and 1 of IC7260.
Adjust 2267 so that colour pattern on the screen is practically stationary. Remove the resistor and the interconnection.

9. PAL delay line

Apply a generator signal from a PM5509 or PM5519.
Set the generator to "DEM". Set contrast and brightness to normal and set the saturation control to 3/4 of its range. Adjust 3280 so that the venetian-blinds effect in the 3rd bar is minimal.
Subsequently, adjust 5270 until the venetian-blinds effect in the 1st and the 4th bar is also minimal.
Readjust 3280 if necessary.

10. Chroma trap in the luminance circuit

Use a colour-bar pattern and set the receiver controls to their normal settings.
Connect an oscilloscope to point 8 of IC7260 and adjust 5261 for minimum amplitude of the chrominance signal which is situated on the various brightness steps of the luminance signal.

11. RF-AGC

If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer 3092 on IF/SYNC unit 1001, until the picture is no longer distorted. To achieve this the screening cap of the IF/SYNC unit has to be removed.

B. ADJUSTMENTS TO THE CRT BOARD

1. Picture width

The picture width is adjustable with 3591.

2. East-West correction

Is adjusted with 3592.

C. ADJUSTMENTS TO THE CCT DECODER

1. Connect pin 22 of IC7785 to ground.
Adjust 2802 for a free-running frequency of 6.010 MHz \pm 2,5 kHz at pin 17 of IC7785.

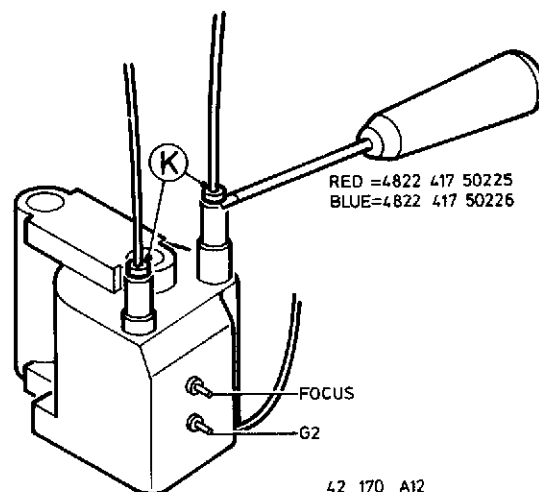












Fig. 3

42 170 A12

CARRIER PANEL

| | |
|--|--|
|  |  |
| CNX62 4822 130 90121 HCF4053BE 4822 209 71749 LA7910 4822 209 10892 LN524RAP 4822 130 90388 L7812CV 5322 209 86176 TDA3562A/N5 4822 209 71751 TDA8190 4822 209 70872 TEA1039/N4 4822 209 83104 TMP47C432AP 4822 209 72038 | 5108 4822 157 53064 5109 4822 157 53064 5259 4822 157 52287 5260 4822 157 53065 5260 4822 157 52265 for amtsblatt 5261 4822 157 52807 5262 4822 157 53093 5270 4822 157 52808 5271 4822 157 52055 5608 4822 157 53069 |
|  | 5611 4822 150 50073 line output 5620 4822 140 10325 line driver 5629 4822 140 10324 |
| BC328 4822 130 44104 BC337 4822 130 40855 BC337-40 4822 130 41344 BC368 5322 130 44647 BC547C 4822 130 44503 BC548 4822 130 40938 BC548B 4822 130 40937 BC548C 4822 130 44196 BC558 4822 130 40941 BD227 5322 130 44661 BD437 4822 130 40982 BD438 4822 130 40995 BUT11AF 4822 130 42679 BU508A 4822 130 42164 | 5653 4822 157 53068 5654 4822 148 60165 SOPS 5655 4822 157 51195 5656 4822 157 51157 5658 4822 157 51195 5659 4822 157 53062 |
|  |  |
|  BYD33D 4822 130 42488 BYD33G 4822 130 42489 BYD33J 4822 130 42606 BYV26C 4822 130 32343 BYV95A 4822 130 41601 BYV95B 4822 130 41486 BY228 4822 130 41275 BZX79-C3V9 4822 130 31981 BZX79-C4V7 4822 130 34174 BZX79-C5V6 4822 130 34173 BZX79-C6V2 4822 130 80303 CQS51-4 4822 130 80309 ZTK33B 4822 130 30959 1N4148-75 4822 130 33939 1N5061 4822 130 31933 | 3102 4822 111 30499 4.7 Ω 0.33W 3280 4822 100 20148 1 k Ω potm. 3283 4822 111 30593 3.3 Ω 0.33W 3570 4822 116 51166 8.2 k Ω 2.5W 3571 4822 111 30821 3.9 Ω 0.5W 3576 4822 101 10818 100 Ω potm. 3610 4822 116 30323 150 k Ω NTC 3628 4822 111 30504 6.8 Ω 0.33W 3653 4822 116 40065 PTC 3656 4822 116 80288 100 k Ω 2W 3657 4822 115 10094 1.5 k Ω 7W 3660 4822 113 80429 0.1 Ω 2W 3667 5322 116 54272 1.5 k Ω 2.5W 3670 4822 100 10361 100 Ω potm. 3672 4822 111 30483 1 Ω 0.33W 3875 4822 111 30593 3.3 Ω 0.33W 3944 4822 101 10819 50 k Ω potm. |

CARRIER PANEL

|  | | |  | | |
|--|----------------|------------------|---|----------------|-----------------------------|
| 2113 | 4822 124 41334 | 470 μ F 35 V | 10J | 4822 290 60626 | 2P |
| 2123 | 4822 124 40435 | 10 μ F 50 V | 11B | 4822 267 40653 | 2P |
| 2267 | 4822 125 50045 | 20 pF trimm. | 12G | 4822 265 30273 | 3P |
| 2521 | 4822 124 40434 | 22 μ F 35V | 13R | 4822 267 30546 | 6P |
| 2526 | 4822 124 40434 | 22 μ F 35V | 14R | 4822 267 30546 | 6P |
| 2610 | 5322 121 44357 | 7.5 nF 2kV | 15G | 4822 265 40252 | 7P |
| 2611 | 4822 121 40479 | 390 nF 250V | 16R | 4822 267 40653 | 2P |
| 2619 | 4822 121 41339 | 2.2 nF 2kV | 17 | 4822 264 50177 | 10P for coil cable |
| 2621 | 4822 124 22257 | 22 μ F 250V | 18G | 4822 266 30276 | 4P |
| 2652 | 5322 121 44222 | 330 nF 250V | 19G | 4822 265 40503 | 5P |
| 2656 | 4822 124 22172 | 150 μ F 385V | 20G | 4822 265 40469 | 6P |
| 2663 | 4822 121 41531 | 1000 pF 250V | 21G | 4822 265 40471 | 8P |
| 2668 | 4822 124 40724 | 1000 μ F 35V | VARIOUS | | |
| 2670 | 4822 124 22257 | 22 μ F 250V | | | |
| 2672 | 4822 124 40724 | 1000 μ F 35V | 1000 | 4822 212 22746 | IR receiver |
| 2673 | 4822 124 40201 | 1000 μ F 16V | 1001 | 4822 212 22739 | SYNC/IF-B/G |
| 2735 | 4822 124 40723 | 2200 μ F 16V | 1001 | 4822 212 22771 | SYNC/IF-I |
| 2934 | 4822 122 32149 | 27 pF 100V | 1001 | 4822 212 22769 | SYNC/IF-Multi |
| 2935 | 4822 122 32149 | 27 pF 100V | 1002 | 4822 210 10266 | UV617 |
|  | | | 1002 | 4822 210 40278 | UV617/E |
| 1652 | 4822 253 30024 | T1.6A | 1002 | 4822 210 10299 | UV627 |
| 1653 | 4822 253 10046 | T1.6A | 1002 | 4822 210 50118 | U743 |
| 1654 | 4822 253 10046 | T1.6A | 1030 | 4822 276 12056 | mains-switch (SK1) |
|  | | | 1059 | 4822 212 22738 | keyboard foil assy. |
| 10J | 4822 265 40596 | 2P | 1103 | 4822 121 40543 | filter SFE5.5 MB |
| 11B | 4822 265 30389 | 2P | 1103 | 4822 242 70279 | filter SFE6.0 MB |
| 12G | 4822 265 30407 | 3P | 1103 | 4822 242 71841 | filter SFE6.0 MA |
| 13R | 4822 267 40722 | 6P | 1104 | 4822 242 70714 | filter SFE5.5 MA |
| 14R | 4822 267 40722 | 6P | 1262 | 4822 157 51056 | delay line DL330 |
| 15G | 4822 290 40295 | 7P | 1267 | 4822 242 70626 | crystal 8.867238 MHz |
| 16R | 4822 267 40665 | 3P | 1270 | 4822 320 40096 | delay line DL701 |
| 18G | 4822 417 50217 | 4P | 1566 | 4822 273 50296 | switch 3P |
| 19G | 4822 267 40648 | 5P | 1901 | 4822 138 10032 | battery 2.5V |
| 20G | 4822 267 50591 | 6P | 1934 | 4822 242 70831 | filter 4 MHz |
| 21G | 4822 264 50148 | 8P | | 4822 256 30274 | fuse holder |
| | | | | 4822 462 10281 | headphone socket |
| | | | | 4822 267 60172 | scart socket |
| | | | | 4822 492 63730 | slide spring fix.transistor |
| | | | | 4822 492 63731 | spring fix. transistor |

PICTURE TUBE PANEL



| | |
|----------|----------------|
| BC337 | 4822 130 40855 |
| BC548B | 4822 130 40937 |
| BC556 | 4822 130 40989 |
| BC558 | 4822 130 40941 |
| BF422 | 4822 130 41782 |
| BF423/01 | 4822 130 60703 |
| BF819 | 4822 130 42159 |
| BF869 | 4822 130 41773 |



| | |
|-----------|----------------|
| BAV21 | 4822 130 30842 |
| BYD33G | 4822 130 42489 |
| 1N4148-75 | 4822 130 33939 |



| | |
|------|----------------|
| 5401 | 4822 157 50964 |
|------|----------------|



| | | | |
|------|----------------|-----------------|-------|
| 3403 | 5322 116 53619 | 6.34 k Ω | 0.6 W |
| 3406 | 5322 116 53263 | 6.19 k Ω | 0.6 W |
| 3426 | 5322 116 80076 | 105 k Ω | 0.6 W |
| 3427 | 4822 116 80327 | 137 k Ω | 5 W |
| 3428 | 5322 116 80076 | 105 k Ω | 0.6 W |
| 3439 | 4822 116 52399 | 1.5 k Ω | 0.5 W |
| 3440 | 4822 116 52399 | 1.5 k Ω | 0.5 W |
| 3444 | 4822 116 52399 | 1.5 k Ω | 0.5 W |
| 3445 | 4822 116 80328 | 470 Ω | 0.5 W |
| 3591 | 4822 100 10051 | 22 k Ω | potm. |
| 3592 | 4822 100 10052 | 100 k Ω | potm. |
| 3599 | 4822 111 30526 | 47 Ω | 0.33W |



| | | |
|------|----------------|------------|
| 2407 | 4822 122 33109 | 2.2 nF 1kV |
|------|----------------|------------|



| | | |
|-----|----------------|----|
| 22G | 4822 290 40295 | 7P |
| 23R | 4822 267 40722 | 6P |



| | | |
|-----|----------------|-----------|
| 22G | 4822 265 40252 | 7P |
| 23R | 4822 267 30546 | 6P |
| | 4822 255 70216 | socket PT |

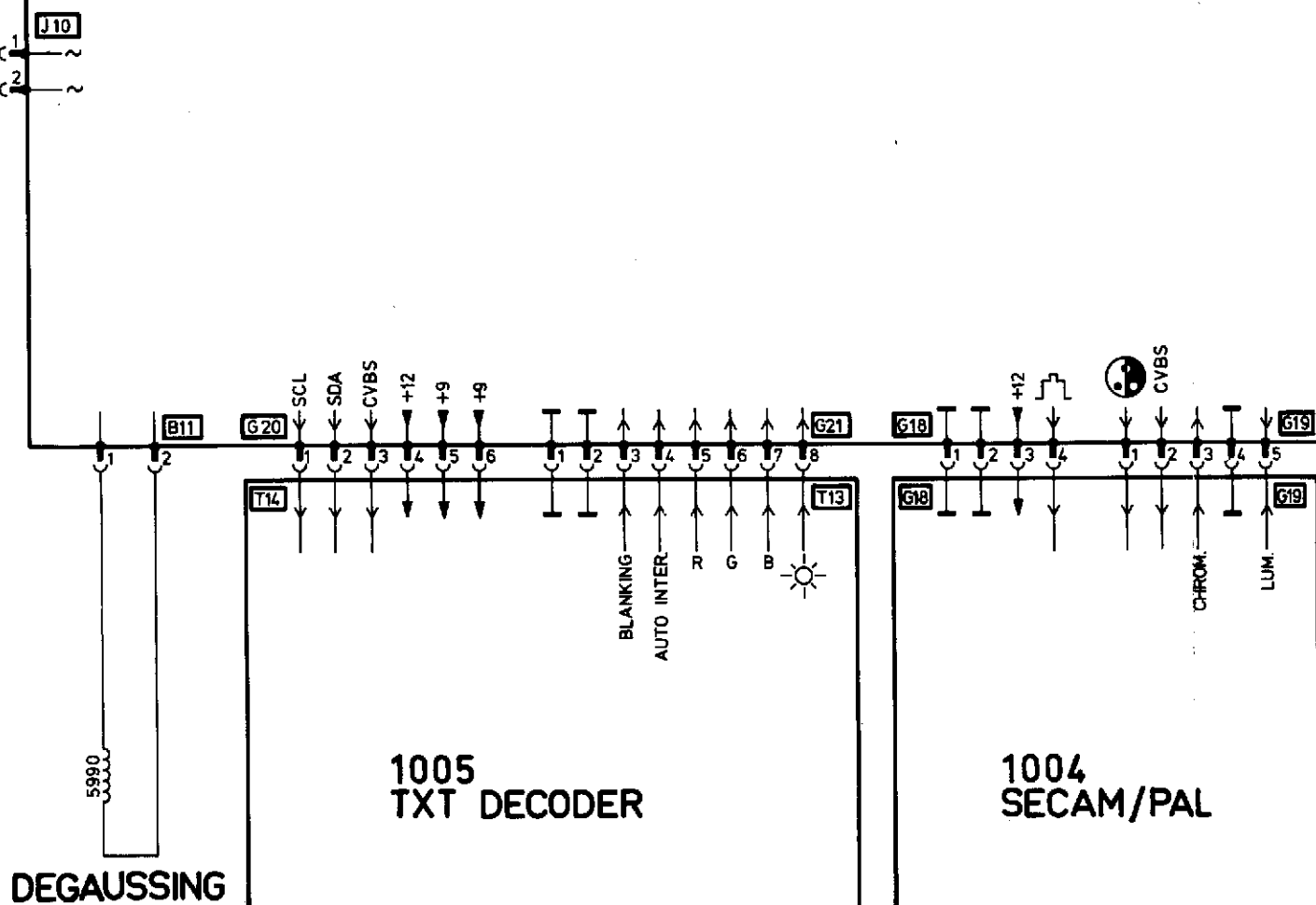
MUTE PANEL

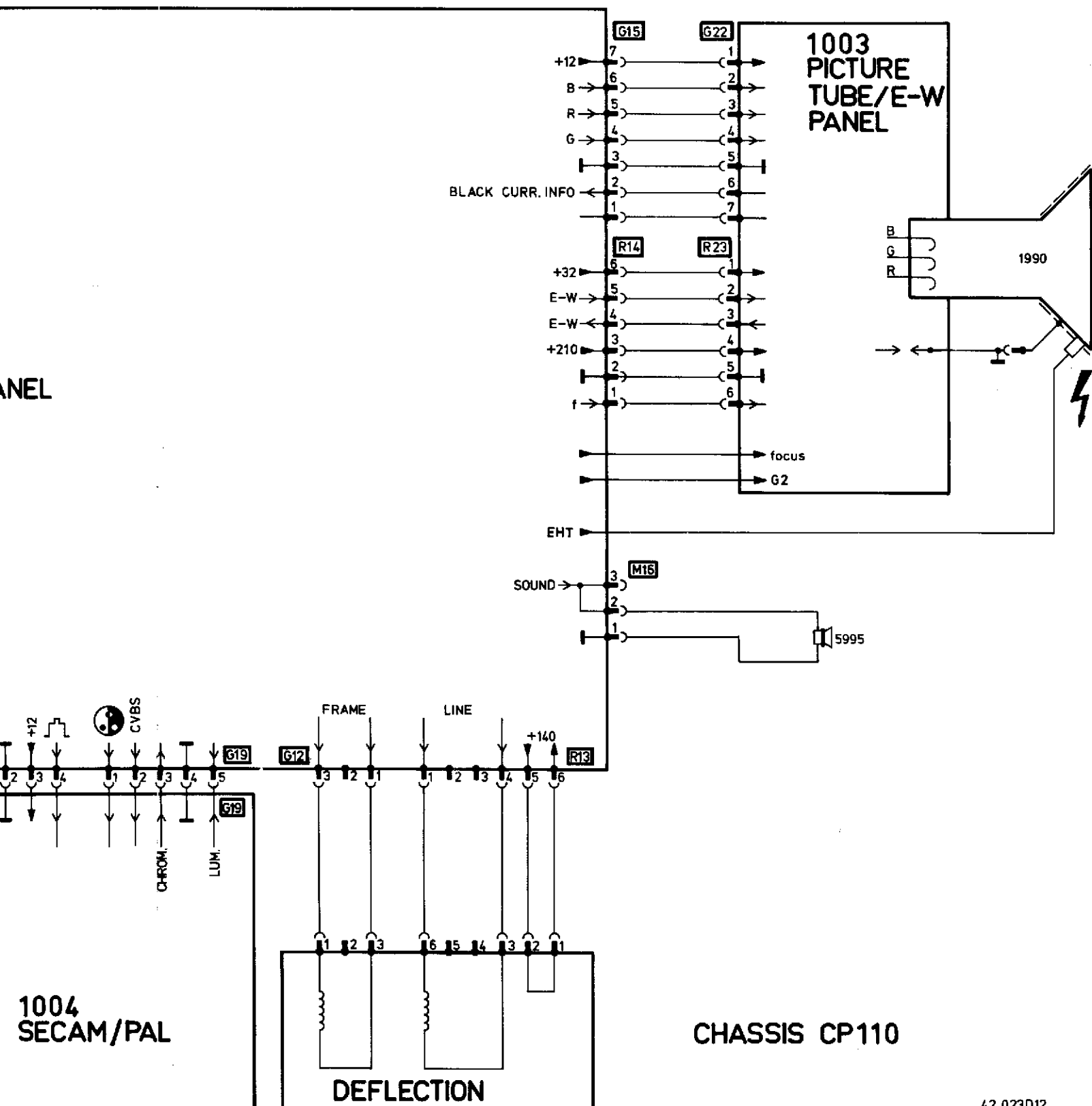


| | |
|--------|----------------|
| BC548B | 4822 130 40937 |
| BC558B | 4822 130 44197 |



| | |
|-----------|----------------|
| 1N4148-30 | 4822 130 33941 |
|-----------|----------------|

1070
CARRIER PANEL



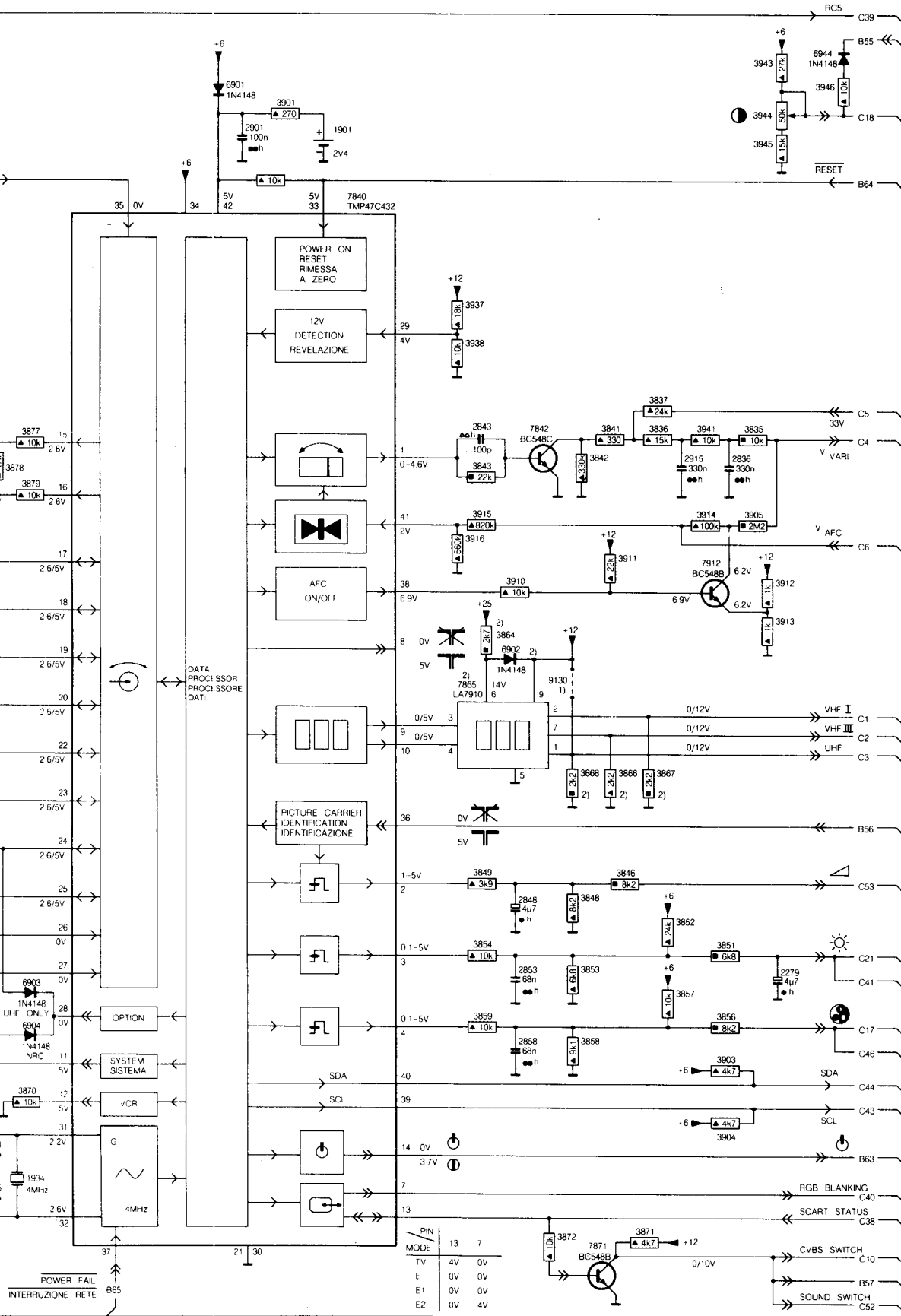
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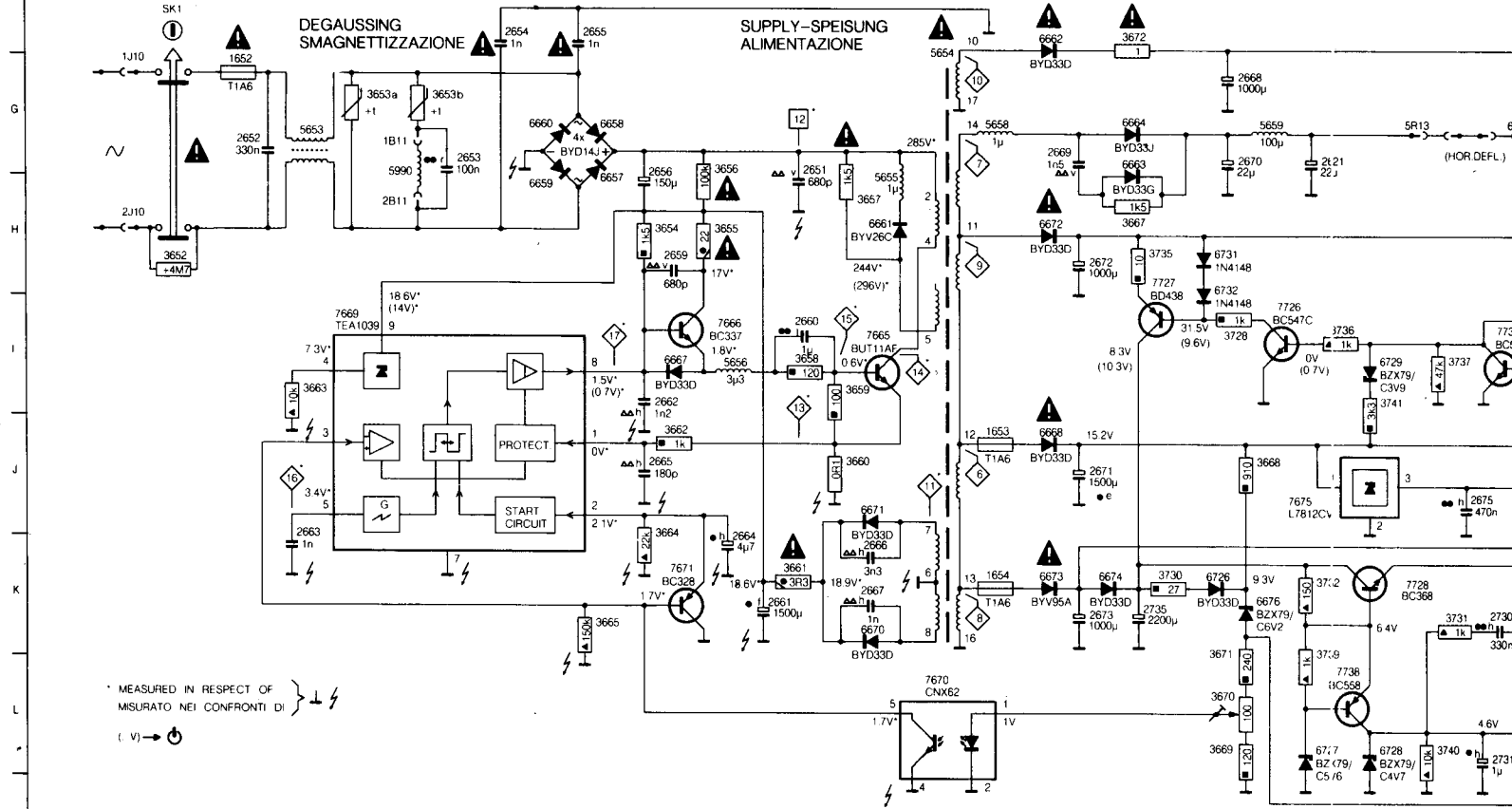
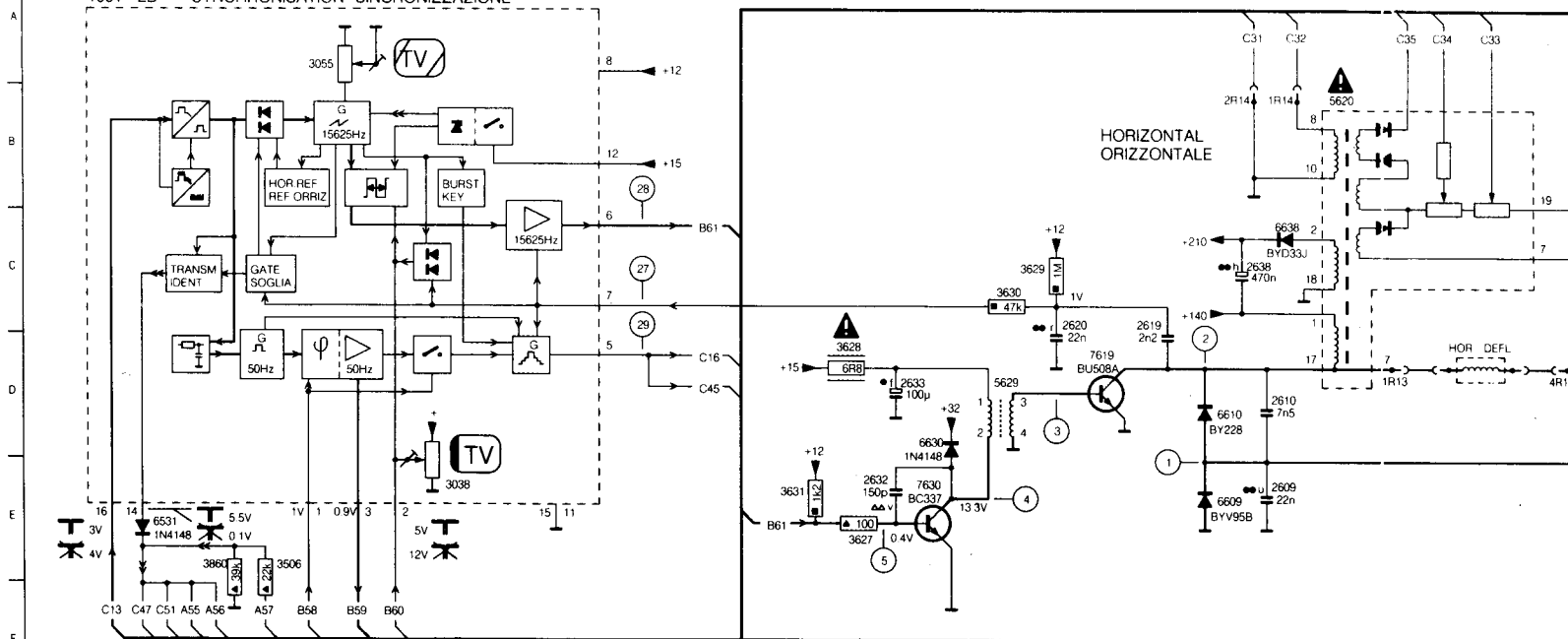
VST2 SYSTEM SISTEMA VST2



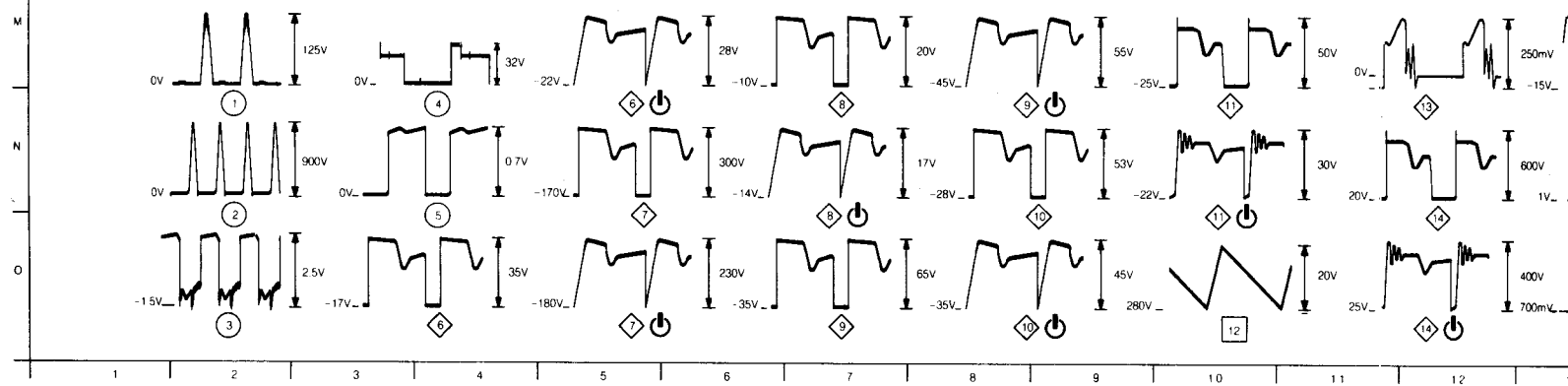
1003 A 3
1901 C11
1934 N 8
1986 A 2
2279 L16
2836 F15
2843 F12
2848 K13
2853 L13
2858 L13
2875 F 4
2901 C10
2915 F15
2934 N 7
2935 N 7
3520 B 6
3521 B 6
3522 B 7
3523 A 7
3726 M 7
3729 N 6
3835 F15
3836 F14
3837 F14
3841 F14
3842 F14
3843 F12
3846 K14
3848 K14
3849 K12
3851 K15
3852 K15
3853 L14
3854 K12
3855 L15
3857 L15
3858 L14
3859 L12
3861 M 7
3864 H13
3866 J14
3867 J14
3868 J14
3869 M 5
3870 M 8
3871 N14
3872 N13
3875 E 4
3876 F 5
3877 F 6
3878 F 8
3879 G 8
3883 G 7
3884 H 7
3885 H 7
3886 I 7
3887 I 7
3889 J 7
3890 K 7
3891 J 7
3901 C10
3903 M15
3904 M15
3905 G15
3910 H13
3911 G14
3912 H16
3913 G15
3914 G12
3915 G12
3916 G12
3937 E12
3938 E12
3941 F15
3943 B15
3944 C15
3945 C15
3946 B16
6530 A 7
6733 M 7
6875 E 4
6896 K 5
6897 J 5
6901 B10
6902 H13
6903 L 8
6904 L 8
6905 C 4
6944 B16
7517 B 6
7730 N 6
7732 M 7
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7871 O14
7876 F 5
7878 F 7
7880 G 1
7912 G15
9130 I13

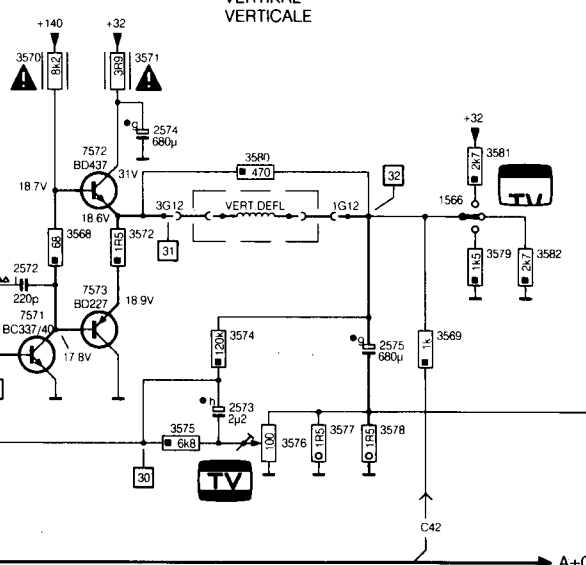
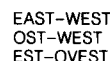
DIAGRAM-SCHALTBIKD-SCHEMA B

1001-2B SYNCHRONISATION-SINCROINIZZAZIONE



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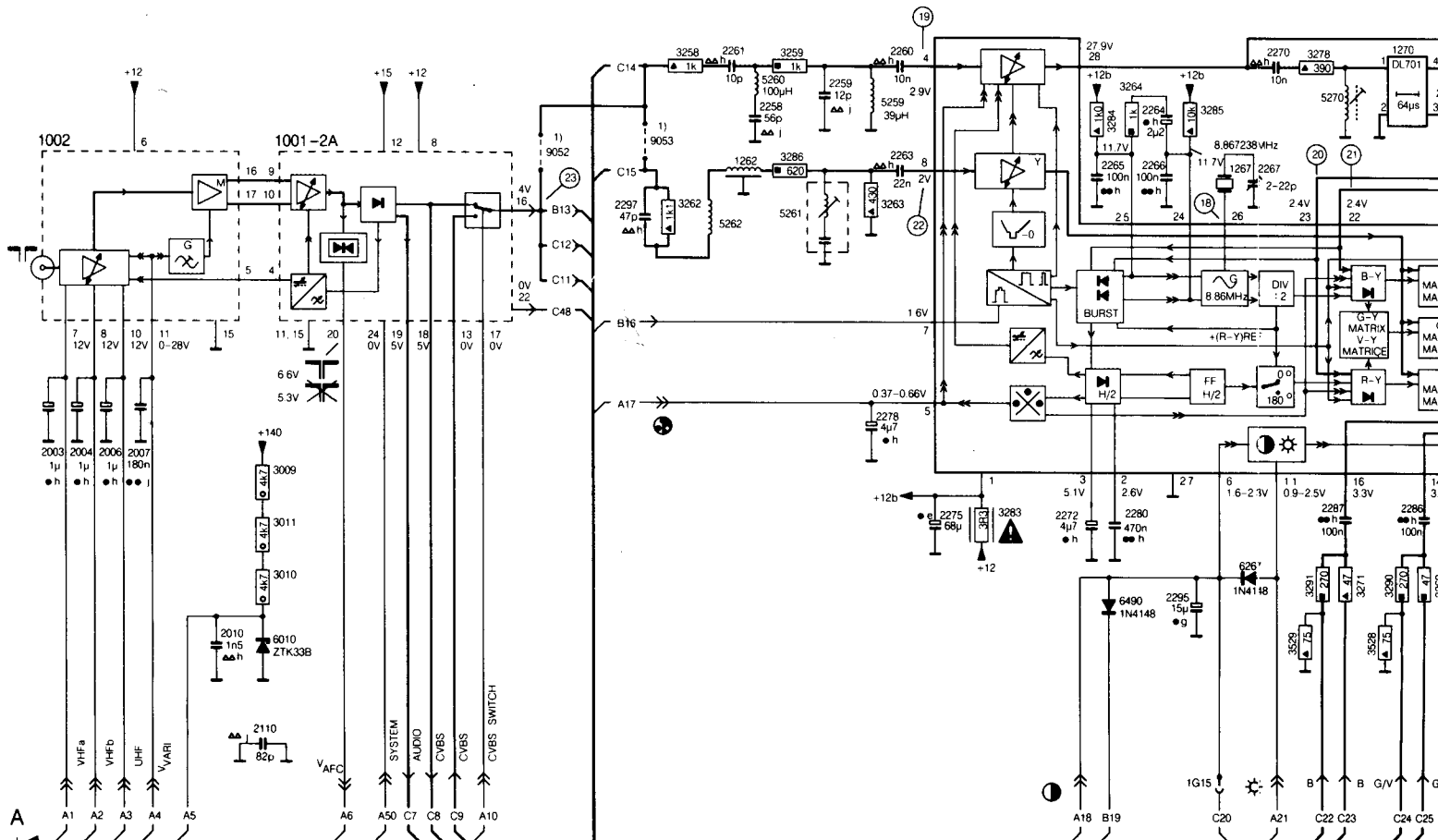
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|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|---|
| 1001 | C 3 | 1270 | B12 | 2104 | K14 | 2114 | K19 | 2260 | B 8 | 2274 | B14 | 2292 | F14 | 2405 | G16 | 2523 | L14 | 3101 | I18 | 3115 | K20 | 3265 | J 8 | 3283 | F 9 | 3403 | B16 | 3413 | H16 | 3422 | E |
| 1002 | C 1 | 1990 | D21 | 2105 | K14 | 2115 | J20 | 2261 | B 7 | 2275 | F 8 | 2295 | G10 | 2406 | A16 | 2524 | L 4 | 3102 | I20 | 3121 | K18 | 3267 | F13 | 3284 | B10 | 3404 | C16 | 3414 | G16 | 3423 | B |
| 1003 | A15 | 2003 | E 1 | 2106 | K16 | 2116 | K17 | 2264 | C 8 | 2278 | E 8 | 2296 | F15 | 2407 | E20 | 2525 | L 5 | 3103 | J13 | 3122 | K18 | 3269 | F12 | 3285 | B11 | 3405 | E16 | 3415 | G15 | 3424 | G |
| 1004 | M13 | 2004 | E 1 | 2107 | I16 | 2118 | K18 | 2264 | B10 | 2280 | F10 | 2297 | C 6 | 2408 | G20 | 2526 | L14 | 3104 | J14 | 3132 | I21 | 3271 | F12 | 3286 | C 7 | 3406 | E16 | 3416 | H17 | 3425 | E |
| 1005 | I10 | 2006 | E 1 | 2108 | I15 | 2123 | L18 | 2265 | C10 | 2285 | F13 | 2298 | C14 | 2409 | H19 | 2527 | L 4 | 3106 | L19 | 3258 | B 6 | 3278 | B12 | 3287 | J 8 | 3407 | C16 | 3417 | C17 | 3426 | B |
| 1103 | J13 | 2007 | E 2 | 2109 | I15 | 2124 | K17 | 2266 | C10 | 2286 | F12 | 2401 | B1 | 2503 | K 3 | 3009 | F 3 | 3107 | K19 | 3259 | B 7 | 3279 | B14 | 3289 | F13 | 3409 | I18 | 3418 | G17 | 3427 | F |
| 1104 | I14 | 2010 | G 2 | 2110 | H 3 | 2125 | K17 | 2267 | C11 | 2287 | F12 | 2402 | F16 | 2507 | L 4 | 3010 | F 3 | 3111 | J20 | 3262 | C 6 | 3280 | B14 | 3290 | F12 | 3410 | I17 | 3419 | E17 | 3428 | D |
| 1262 | C 7 | 2101 | I20 | 2111 | K20 | 2258 | B 7 | 2270 | F 9 | 2290 | F14 | 2403 | D16 | 2520 | K16 | 3011 | F 3 | 3113 | K20 | 3263 | C 8 | 3281 | B13 | 3291 | F11 | 3411 | I17 | 3420 | B17 | 3429 | B |
| 1267 | C11 | 2102 | I20 | 2113 | J20 | 2259 | B 8 | 2272 | F 9 | 2291 | F14 | 2404 | H17 | 2521 | K 4 | 3059 | L 8 | 3114 | K20 | 3264 | B10 | 3282 | B13 | 3402 | C16 | 3412 | C16 | 3421 | G17 | 3430 | A |

DIAGRAM-SCHALTBILD-SCHEMA C

CHANNEL SELECTOR
KANALWAHLER
SELETTORE CANALE

IF AMPL.+DET. +AGC. +AFC.
ZF VERST. +DEM. +AVR. +AFA.
AMPL. FI +RIVEL. CAG. +CAF.

CHROMINANCE + LUMINANCE
FARBART + LEUCHTDICHTE
CROMINANZA + LUMINANZA

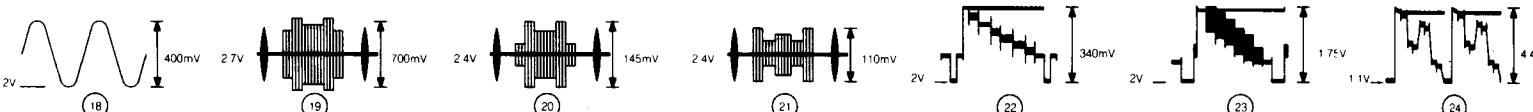
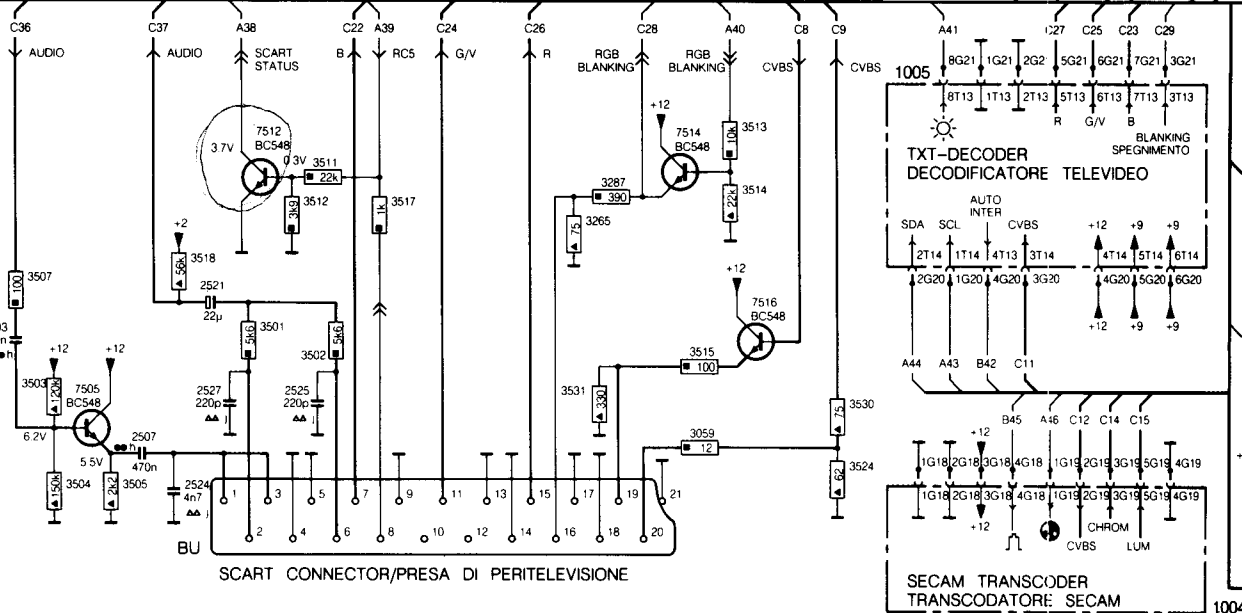


REMARKS-ANMERKUNGEN-NOTE

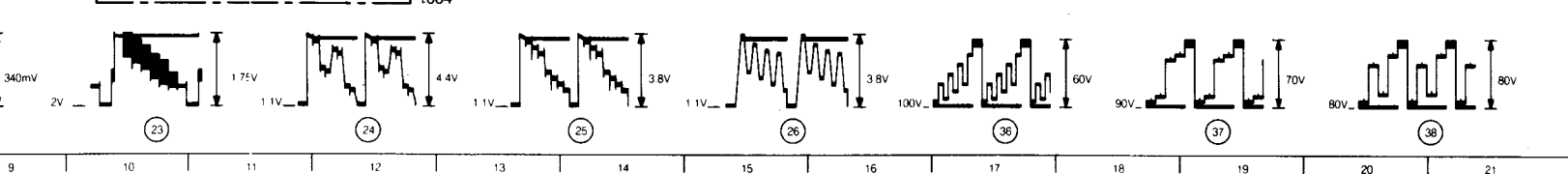
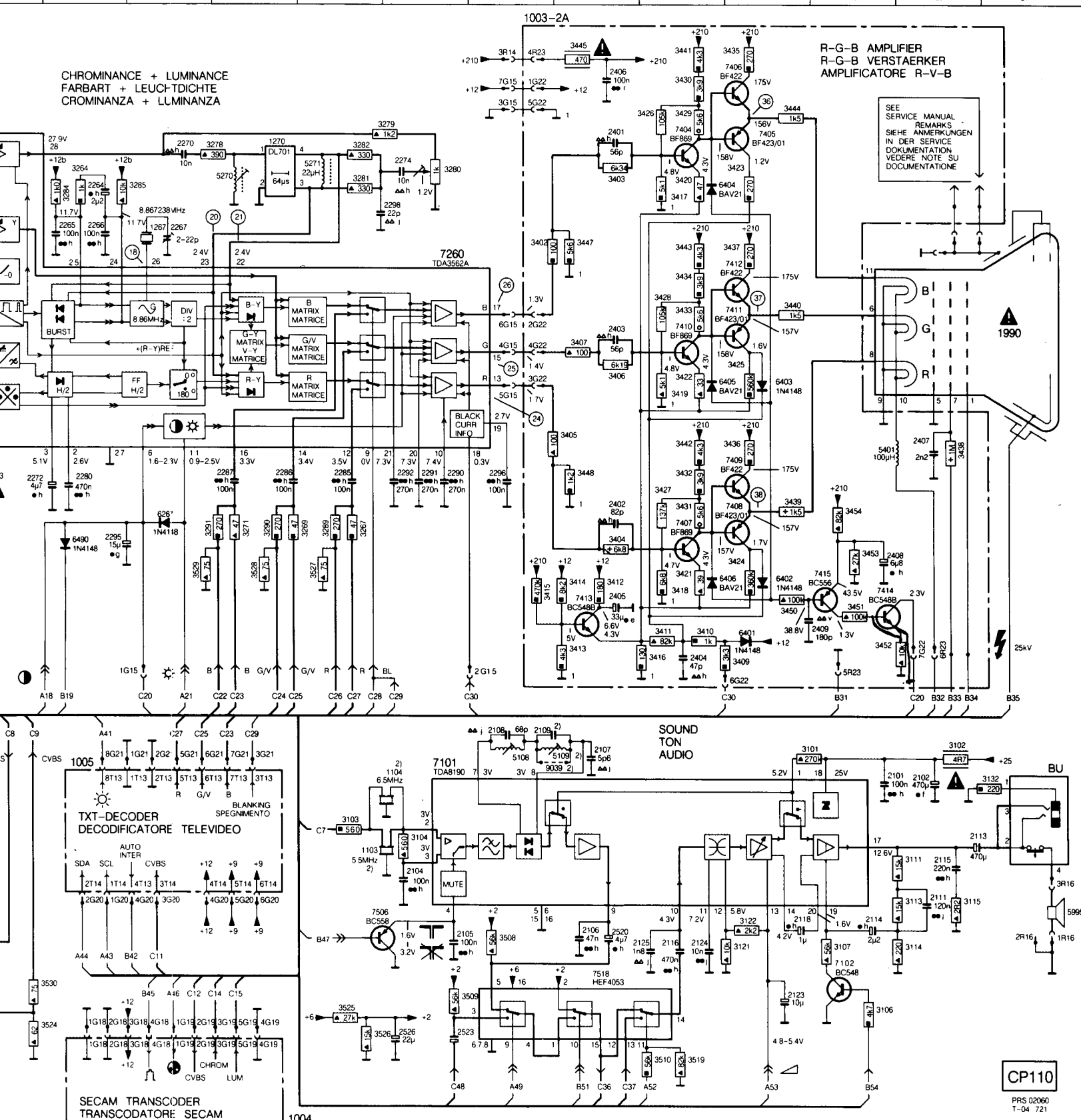
- 1) - NOT PRESENT FOR PAL/SECAM SETS
- NICHT PRESENT IN PAL/SECAM GERÄTEN
- ASSENTE SUI MODELLI CON PAL/SECAM

- 2) - FOR VERSION:

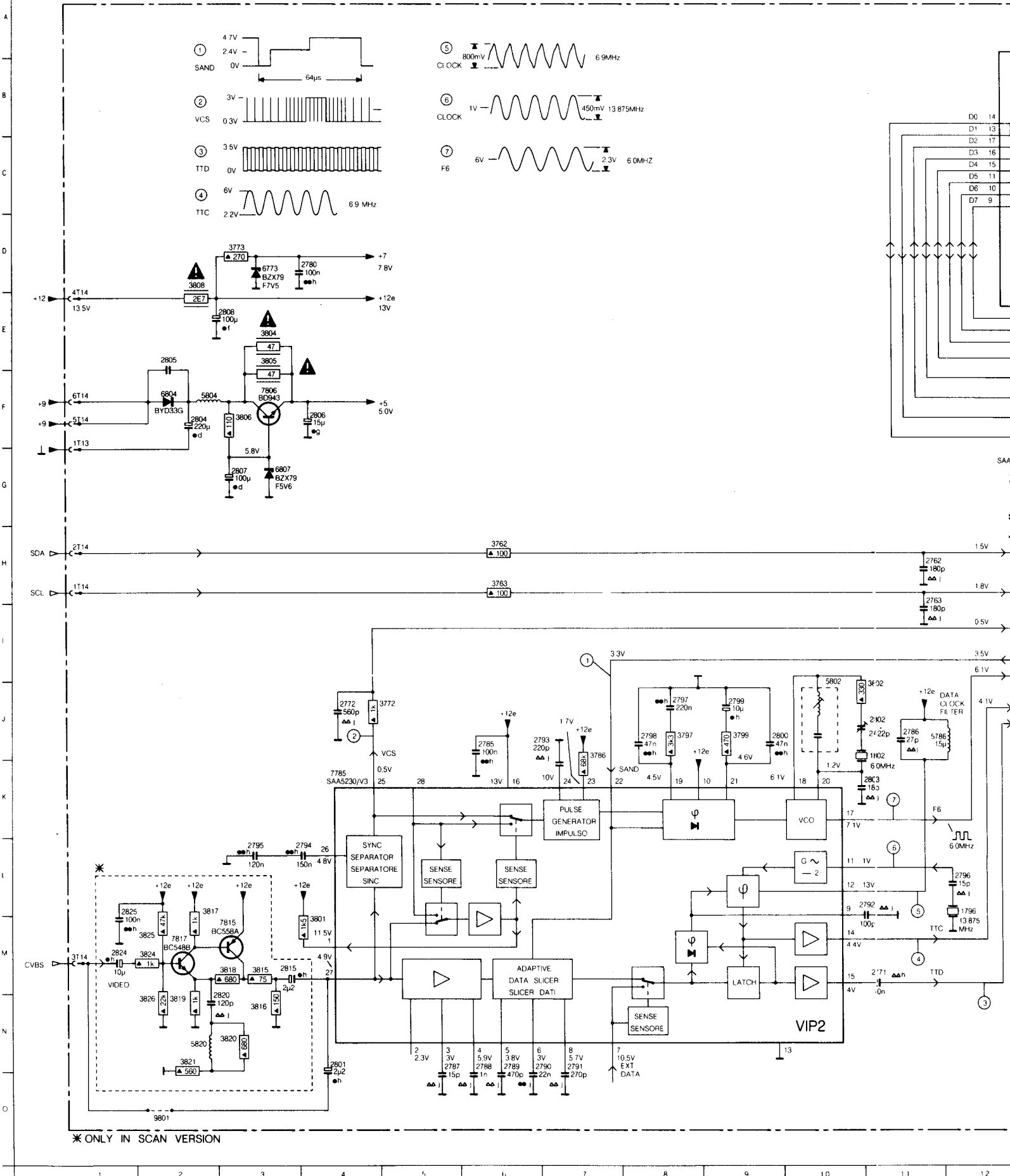
| | BG 5.5MHz | I 6MHz | K-BG 5.5/6.5MHz |
|-------------|--------------|-----------|--------------------|
| 1103 | X | X | X |
| 1104 | - | - | X |
| 2109 | - | - | X |
| 5109 | X | X | - |
| 9039 | X | X | - |
| X - PRESENT | - | - | NOT PRESENT |

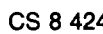


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| 3265 | J 8 | 3283 | F 9 | 3403 | B16 | 3413 | H16 | 3422 | E17 | 3431 | F17 | 3440 | D18 | 3451 | G19 | 3507 | K 3 | 3517 | J 6 | 3530 | L10 | 5271 | B13 | 6405 | E18 | 7407 | F17 | 7505 | L 3 |
| 3267 | F13 | 3284 | B10 | 3404 | C16 | 3414 | G16 | 3423 | B18 | 3432 | F17 | 3441 | A17 | 3452 | H19 | 3508 | K15 | 3518 | K 4 | 3531 | L 7 | 5401 | F19 | 6406 | G18 | 7408 | F18 | 7506 | K13 |
| 3269 | F13 | 3285 | B11 | 3405 | E16 | 3415 | G15 | 3424 | G18 | 3433 | D17 | 3442 | E17 | 3453 | G19 | 3509 | L15 | 3519 | M17 | 5108 | I15 | 5995 | K21 | 6490 | G10 | 7409 | F18 | 7512 | J 5 |
| 3271 | F12 | 3286 | C 7 | 3406 | H17 | 3416 | H17 | 3425 | E18 | 3434 | C17 | 3443 | C17 | 3454 | F19 | 3510 | M17 | 3524 | L10 | 5109 | I16 | 6010 | G 3 | 7101 | I14 | 7410 | D17 | 7514 | J 8 |
| 3273 | B12 | 3287 | J 8 | 3407 | D16 | 3417 | C17 | 3426 | B17 | 3435 | A18 | 3444 | B18 | 3501 | K 5 | 3511 | J 5 | 3525 | L13 | 5259 | G 8 | 6267 | F11 | 7102 | L19 | 7411 | D18 | 7516 | K 9 |
| 3279 | B14 | 3289 | F13 | 3409 | H18 | 3418 | E17 | 3427 | F17 | 3436 | E18 | 3445 | A16 | 3502 | K 5 | 3512 | J 5 | 3526 | L13 | 5260 | B 7 | 6401 | H18 | 7260 | C14 | 7412 | C18 | 7518 | L16 |
| 3280 | B14 | 3290 | F12 | 3410 | H17 | 3419 | E17 | 3428 | D17 | 3437 | C18 | 3447 | D16 | 3503 | L 3 | 3513 | J 9 | 3527 | G12 | 5261 | C 7 | 6402 | G18 | 7404 | B17 | 7413 | G16 | 9052 | C 5 |
| 3281 | B13 | 3291 | F11 | 3411 | H17 | 3420 | B17 | 3429 | B17 | 3438 | F20 | 3448 | F16 | 3504 | L 3 | 3514 | J 9 | 3528 | G12 | 5262 | C 7 | 6403 | E18 | 7405 | B18 | 7414 | G19 | 9053 | C 6 |
| 3282 | B13 | 3402 | C16 | 3412 | G16 | 3421 | B17 | 3430 | A17 | 3439 | F20 | 3450 | G18 | 3505 | L 4 | 3515 | K 8 | 3529 | G11 | 5270 | B12 | 6404 | E18 | 7406 | A18 | 7415 | G19 | BU | M 4 |
| 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | | | | |










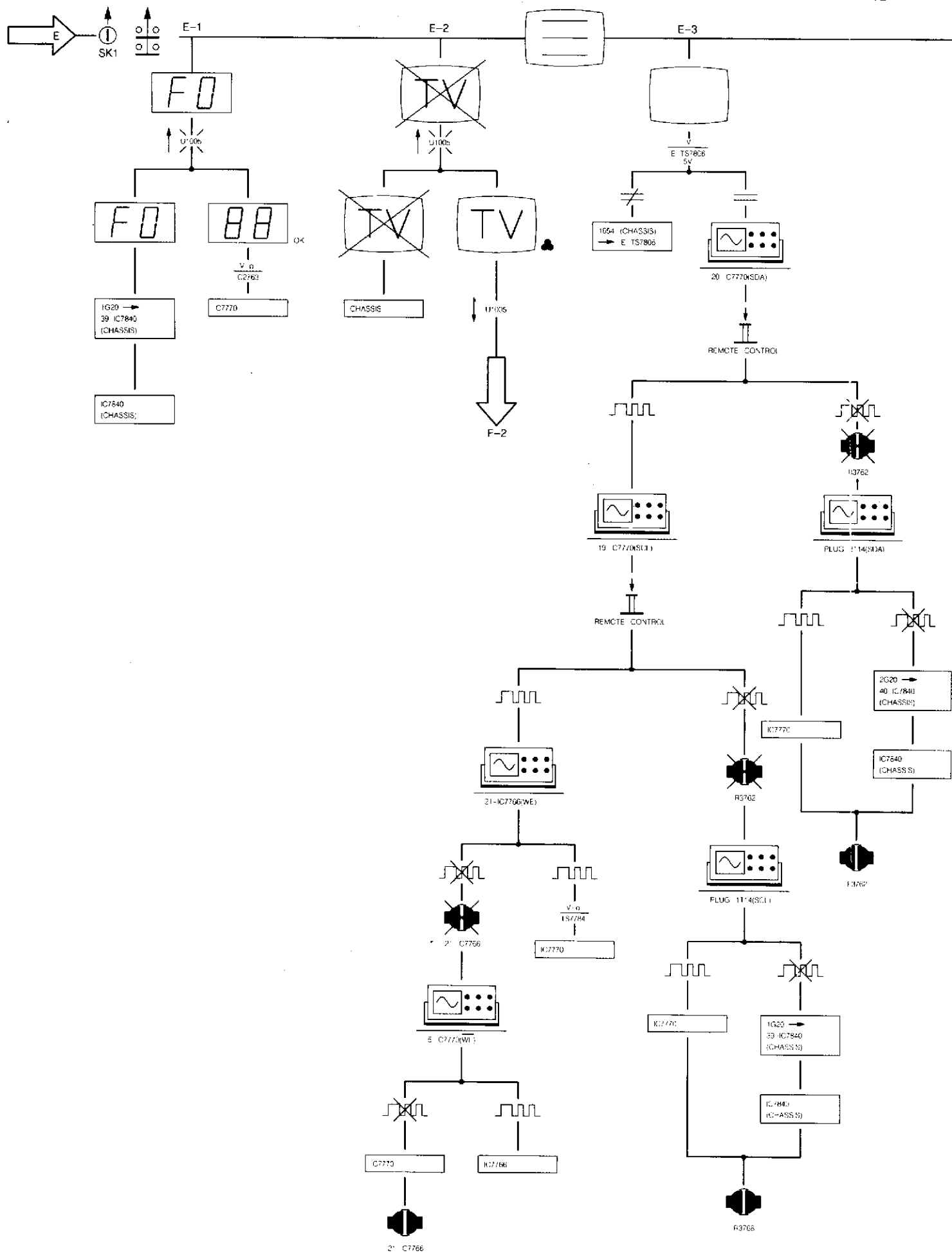
1005 CCT-DECODER/DECODATORE

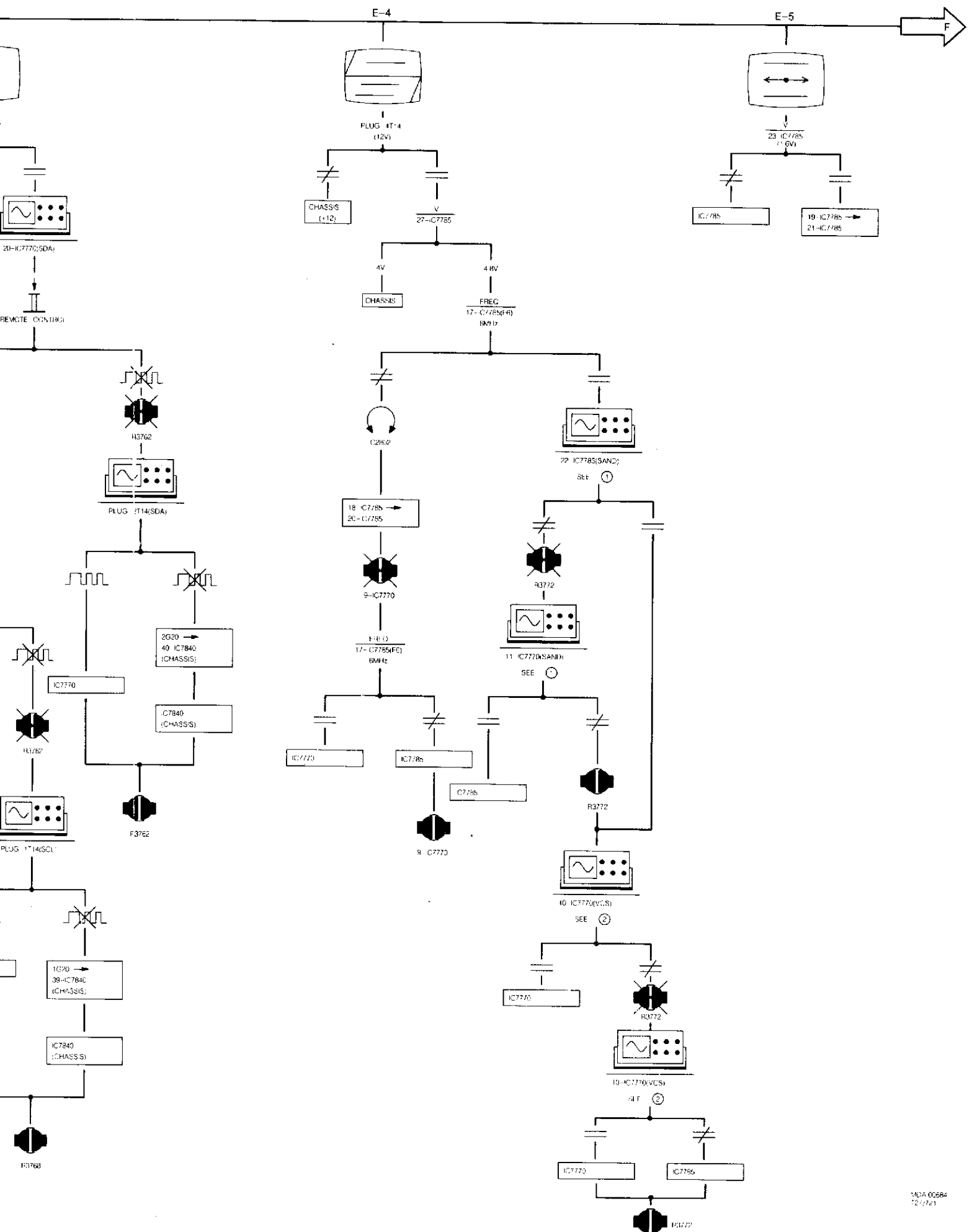


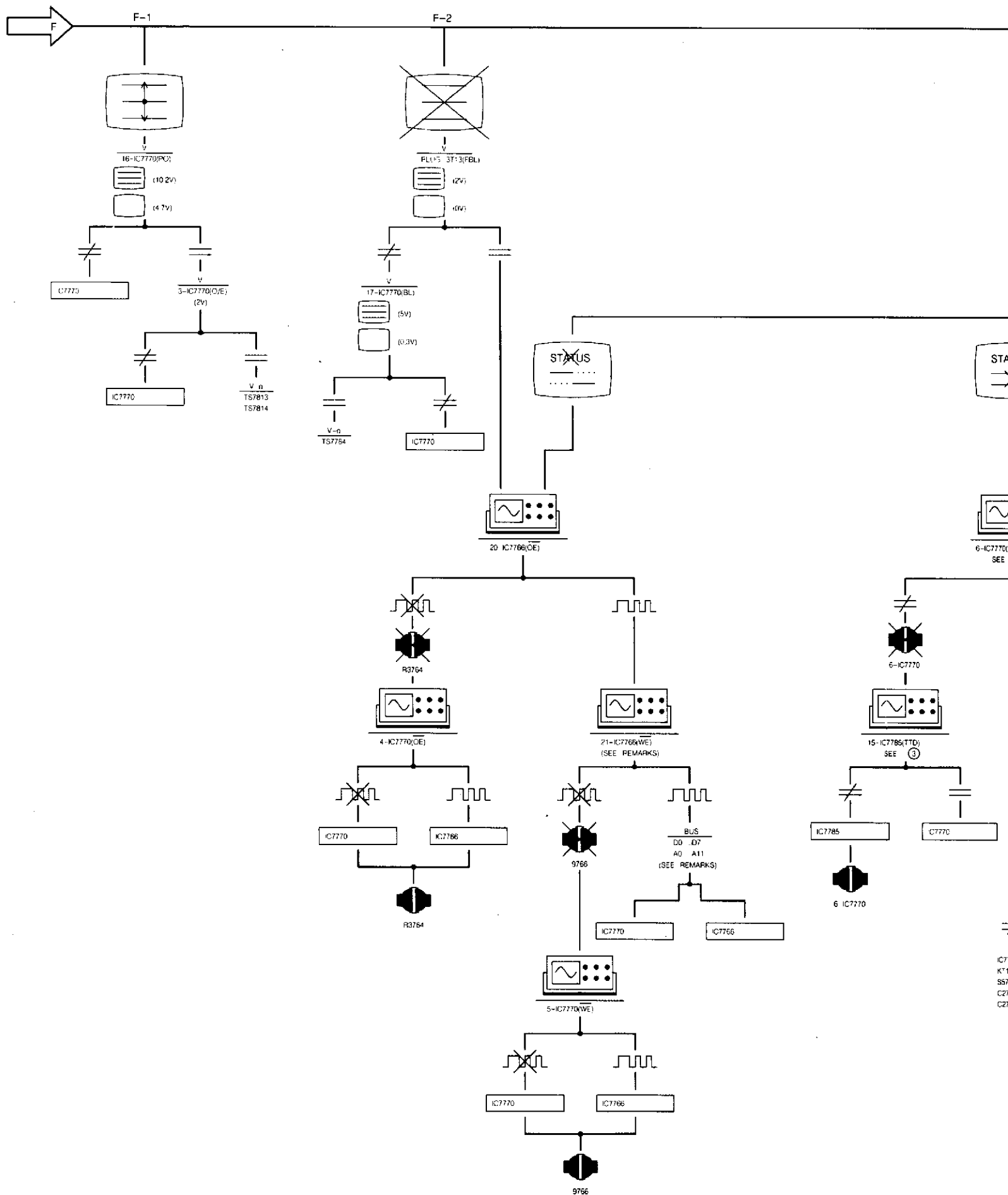


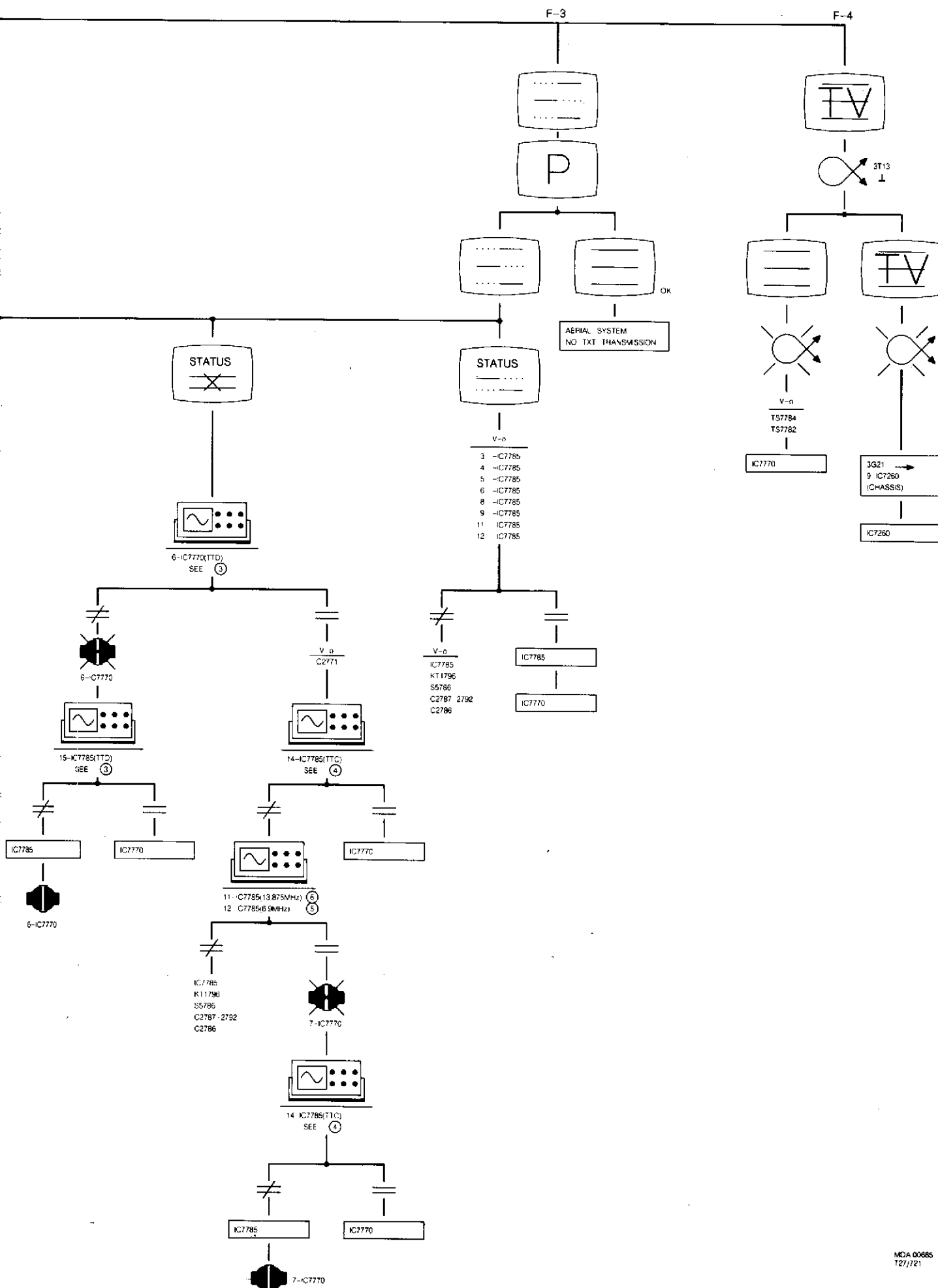
TXT DECODER

| | | | |
|---|----------------|---|-----------------------------------|
|  | |  | |
| SAA5241B | 4822 209 82785 | 3804 | 4822 111 30526 |
| SAA5241A | 4822 209 82819 | 3805 | 4822 111 30526 |
| SAA5231/V3 | 4822 209 71491 | 3808 | 4822 111 30494 |
| TMM2016BP-15 | 4822 209 71527 | | |
|  | |  | |
| BC548B | 4822 130 60529 | 2782 | 4822 122 32192 |
| BC559 | 4822 130 40963 | 2786 | 4822 122 32192 |
| BD943 | 5322 130 44921 | 2787 | 4822 122 31197 |
| | | 2796 | 4822 122 31197 |
| | | 2799 | 4822 124 40435 |
| | | 2802 | 4822 125 50045 |
|  | | | |
| BYD33G | 4822 130 42489 | | |
| BZX79-F5V6 | 4822 130 34173 | | |
| BZX79-F7V5 | 4822 130 80135 | | |
| 1N4148-75 | 4822 130 33939 | | |
| | | VARIOUS | |
| | | 1796 | 4822 242 71417 crystal 13,875 MHz |
| | | 1802 | 4822 242 70932 resonator 6,0 MHz |
|  | |  | |
| 5766 | 4822 157 51462 | T13 | 4822 265 40471 8P |
| 5786 | 4822 157 52224 | T14 | 4822 265 40469 6P |
| 5804 | 4822 157 51157 | | |
| 5820 | 4822 157 53001 | | |



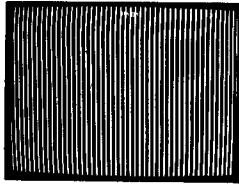






LOCATING BUS ERRORS IN THE TELETEXT DECODER

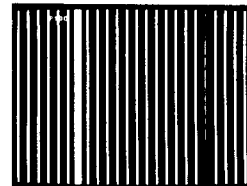
1. Loosen resistor 3784 on teletext decoder 1005.
Connect a piece of wire with measuring pin to pin 9 of IC7260.
2. Connect a TV pattern generator (i.e. PM5519) and tune the receiver normally.
Apply a white pattern and select the teletext mode with the remote control.
3. When transferring the measuring-pin to the points of IC7770 which are indicated under the pictures below a defined pattern is not present, but a uniform white or dark picture arises, there is question of short-circuit or an open connection on the relevant point. It may be caused by one of the two ICs, namely IC7766 - IC7770.



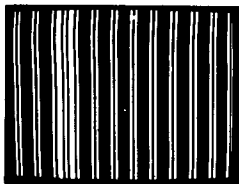
OE 4-IC7770



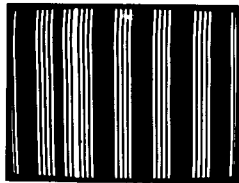
WE 5-IC7770



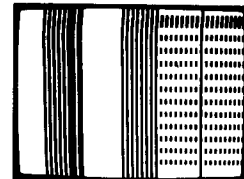
A0 30-IC7770



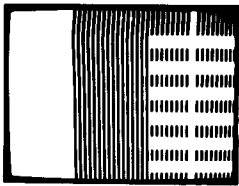
A1 31-IC7770



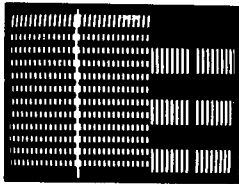
A2 32-IC7770



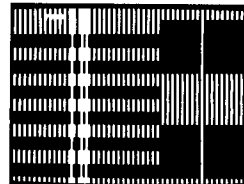
A3 33-IC7770



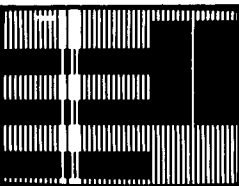
A4 34-IC7770



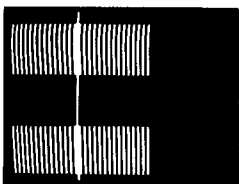
A5 35-IC7770



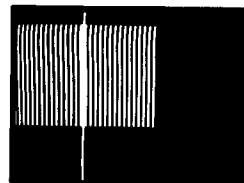
A6 36-IC7770



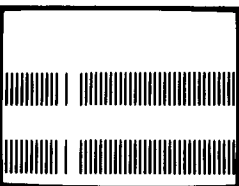
A7 37-IC7770



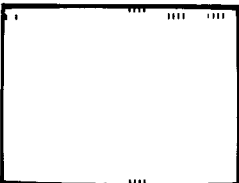
A8 38-IC7770



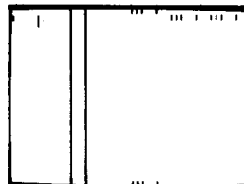
A9 39-IC7770



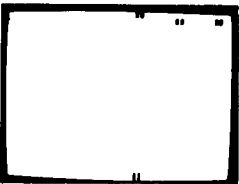
A10 40-IC7770



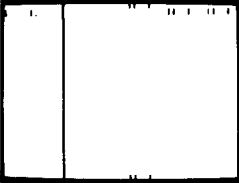
D0 22-IC7770



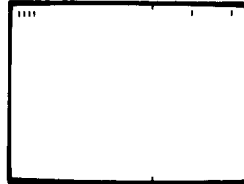
D1 23-IC7770



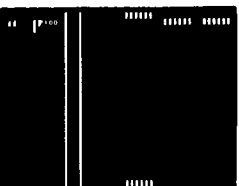
D2 24-IC7770



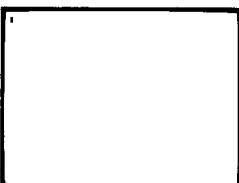
D3 25-IC7770



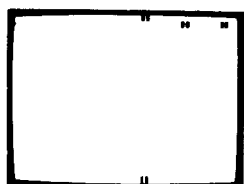
D4 26-IC7770



D5 27-IC7770




D6 28-IC7770









D7 29-IC7770

41 510 A12


QUICK DIAGNOSIS CHART

| Indication on programme display Indikation auf Programm Anzeige | Incorrect functioning Unrichtiges Funktionieren | Correct functioning Richtiges Funktionieren | Possible defective component Eventuelle schadhafte Komponente |
|--|---|---|--|
| F0 | | | IC7770 C2763 (U1005) IC7840 |
| F1 | | | +12 supply +12 Speisung IC7840 |
| F2 | | | IC7840 |
| F3 | | | IC7840 |
| 88 O.K. | R.C. commands Fernbedienungs- befehle | Local keyboard commands Nahbedienungs- befehle | U1003 (IR-receiver) |
| 88 O.K. |  | | IC7865 |

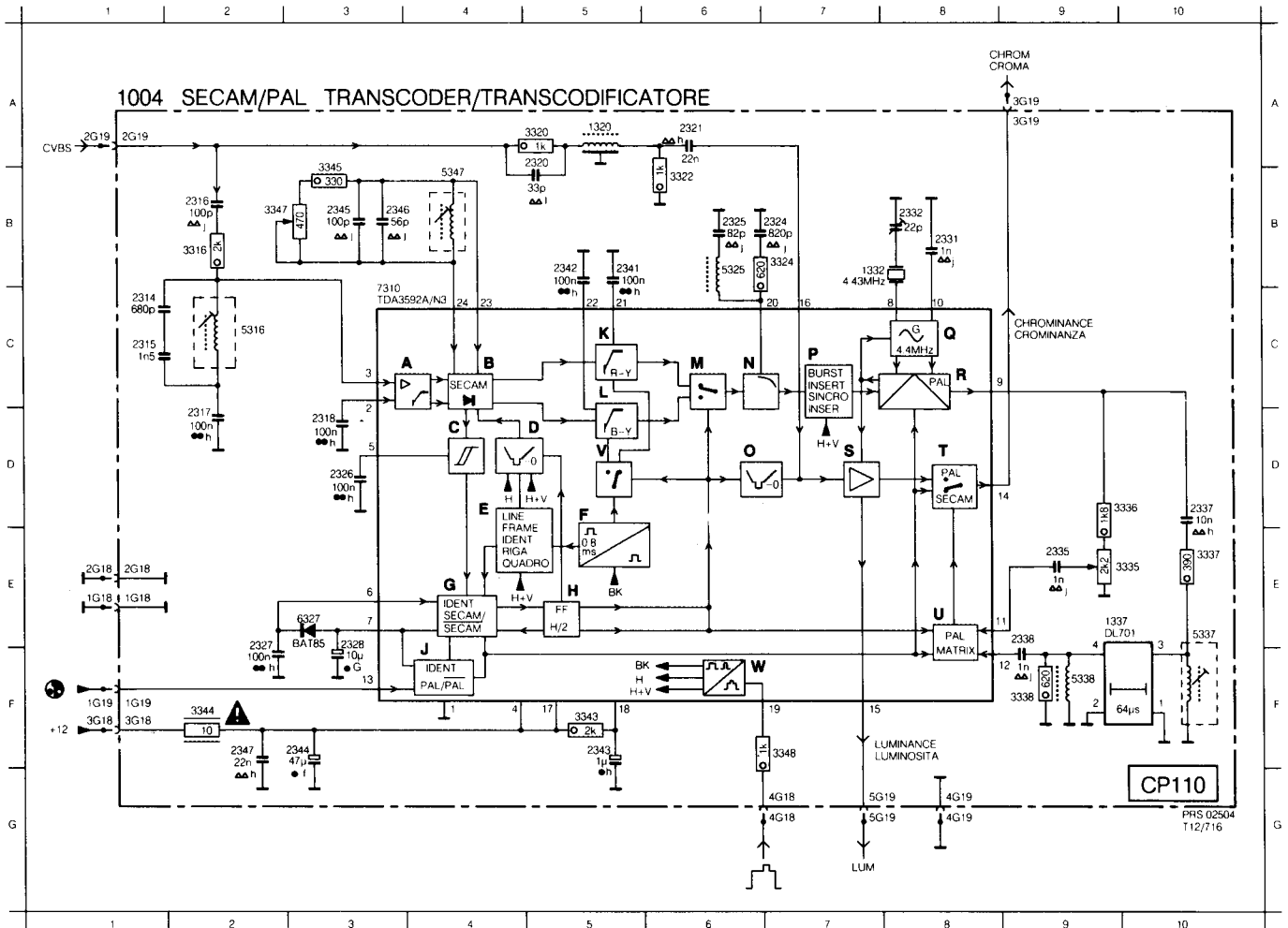
SECAM/PAL TRANSCODER

| | | |
|--|----------------|----------------------|
|  | | |
| TDA3592A/N3 4822 209 11389 | | |
|  | | |
| BAT85 4822 130 31983 | | |
|  | | |
| 5316 | 4822 156 10998 | |
| 5325 | 4822 156 21125 | |
| 5337 | 4822 156 21027 | |
| 5338 | 4822 157 52278 | |
| 5347 | 4822 157 53046 | |
|  | | |
| 3335 | 4822 100 21049 | 2.2 k Ω potm. |
| 3344 | 4822 111 30508 | 10 Ω 0.33 W |
| 3347 | 4822 101 10651 | 470 Ω potm. |
|  | | |
| 2314 | 4822 121 42995 | 680 pF 100V |
| 2315 | 4822 121 42994 | 1.5 nF 100V |
| 2328 | 4822 124 40435 | 10 μ F 50V |
| 2332 | 4822 125 50045 | 20 pF trimm. |
| VARIOUS | | |
| 1320 | 4822 157 53047 | delay line DL450S |
| 1332 | 4822 242 70323 | crystal 4.43 MHz |
| 1337 | 4822 320 40096 | delay line DL701 |
|  | | |
| G18 | 4822 266 30276 | 4P |
| G19 | 4822 265 40503 | 5P |

QUICK DIAGNOSIS CHART

| Indication on programme display Indikation auf Programm Anzeige | Incorrect functioning Unrichtiges Funktionieren | Correct functioning Richtiges Funktionieren | Possible defective component Eventuelle schadhafte Komponente |
|--|---|---|--|
| F0 | | | IC7770 C2763 (U1005) IC7840 |
| F1 | | | +12 supply +12 Speisung IC7840 |
| F2' | | | IC7840 |
| F3 | | | IC7840 |
| 88 O.K. | R.C. commands Fernbedienungs- befehle | Local keyboard commands Nahbedienungs- befehle | U1003 (IR-receiver) |
| 88 O.K. |  | | IC7865 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|------|------|---|------|------|---|------|------|---|------|------|------|------|------|------|------|------|------|------|------|------|---|------|------|------|---|------|------|------|---|------|---|---|
| 1320 | A | 5 | 2315 | C | 1 | 2320 | A | 5 | 2326 | D | 2 | 2332 | B | 8 | 2341 | B | 5 | 2345 | B | 3 | 3320 | A | 5 | 3336 | D10 | 3344 | F | 2 | 5316 | C | 2 | 5347 | B | 4 |
| 1332 | B | 7 | 2316 | B | 2 | 2321 | A | 6 | 2327 | E | 2 | 2335 | E | 9 | 2342 | B | 5 | 2346 | B | 3 | 3322 | B | 6 | 3337 | E10 | 3345 | B | 3 | 5325 | B | 6 | 6327 | E | 3 |
| 1337 | E10 | 2317 | D | 2 | 2324 | B | 7 | 2328 | E | 3 | 2337 | D10 | 2343 | F | 5 | 2347 | F | 2 | 3324 | B | 7 | 3338 | F | 9 | 3347 | B | 2 | 5337 | E10 | 7310 | C | 3 | | |
| 2314 | C | 1 | 2318 | D | 3 | 2325 | B | 2331 | B | 8 | 2338 | E | 9 | 2344 | F | 3 | 3316 | B | 2 | 3335 | E10 | 3343 | F | 5 | 3348 | F | 7 | 5338 | F | 9 | | | | |



ADJUSTMENTS SECAM/PAL TRANSCODER

1. "Circuit cloche"

Disconnect jumper 9302 at one side.
Apply a signal of a signal generator to capacitor 2316.
Adjust the frequency of the signal generator for
4.286 MHz. Connect an oscilloscope to pin 3 of IC7310.
Adjust 5316 for maximum amplitude.

2. Subcarrier oscillator

Apply a 75% SECAM colour bar pattern.
Connect 6-IC7310 by means of a 10k resistor to ground.
Connect a frequency counter with a high input impedance (via a probe $C \leq 2\text{pF}$) to pin 26-IC7260.
Adjust 2332 for a frequency of 8.867236 MHz.

3. SECAM DEMODULATOR

Apply a SECAM black frame signal.
Connect an oscilloscope to pin 14 of IC7310.
Adjust 3347 and 5347 for a minimum modulation.

4. Delay line
















a. Amplitude

Apply a SECAM red frame signal. Connect an oscilloscope to pin 28 of IC7260.
Adjust 3335 for an equal amplitude of the lines.

b. *Phase*

Adjust for a normal brightness and contrast. Connect an oscilloscope to pin 17 of IC7260. Apply a 75% colour bar pattern. Adjust the saturation control for an as flat as possible output voltage. Then apply a 75% SECAM colour bar pattern. Adjust 5337 so that the signal is virtually flat.

| | | | | | |
|--|---|--|---|--|---|
| | Supply aerial signal (colour) | | Normal sound | | Line frame (Venetian blinds) |
| | Remove aerial signal | | No or weak sound | | Heavy horizontal bars |
| | Connect generator colour signal | | No sound | | Unstable TV picture |
| | Carry out voltage measurements | | Sound distorted | | Inject with frequency 2 half volume |
| | Carry out resistance (Ohmic) measurements | | Connect black / white picture | | ... doesn't work |
| | Check ... | | No or weak picture | | Tune in ... Band |
| | Correct | | Uniformly discoloured frame with no or weak picture | | Colours |
| | Incorrect | | Picture discoloured uniformly | | One or two colours weak or not present |
| | Check circuit between and | | Vertical amplitude too small or too large | | Weak colours |
| | Set ... | | Horizontal amplitude too small or too large | | No colours |
| | Set ... | | No vertical deflection | | Switch the set on |
| | Remove unit | | No vertical synchronisation | | Correct television colour picture |
| | Insert unit | | No horizontal synchronisation | | TV-mode |
| | Connect the points A and B | | Horizontal centring incorrect | | Teletext-mode |
| | Remove connection between points A and B | | Vertical centring incorrect | | Teletext rows are missing or include incorrect characters |
| | Adjustment (general) | | Vertical linearity incorrect | | Statusrow is correct, other TXT-rows are missing |
| | Adjustment yields no result | | The left and right vertical lines are curved | | Statusrow is correct, other rows include errors |
| | Filament of picture tube glows | | No horizontal deflection | | Statusrow is not correct, other rows include errors |
| | Filament of picture tube does not glow | | No synchronisation | | Select other programm |
| | Too much light | | Colour blurs in black / white picture | | Unsynchronized TXT-picture |
| | Insufficient light | | Strong colour noise in black / white picture | | Teletext picture moves left / right |
| | No light | | Correct sequence of colours | | Teletext picture moves up / down |

| | | | |
|---|----------------------------------|---|--|
|  | Replace IC ... |  | No or weak horizontal bars |
|  | Desolder ... |  | Vertical lines are curved no TV picture no synchronisation |
|  | Resolder ... |  | Error indication on display |
|  | Measure the signal / oscillogram |  | Programme display correct |
| $\frac{\text{Freq}}{\dots \text{ Hz}}$ | Measure frequency |  | No teletext |
|  | Pulse / pulse train present |  | Teletext correct |
|  | Pulse / pulse train not present |  | Mixed teletext and TV picture |
|  | Check lines ... for bus errors | | |
|  | Depress key ... | | |
| $\approx \dots$ | Is approximately equal to ... | | |
| $= \dots$ | Is equal to ... | | |
| $\neq \dots$ | Is not equal to ... | | |